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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/541,619

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EXAMINER

COHEN, JODI F

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/541,619	Applicant(s) TAKADA ET AL.	
	Examiner Jodi Cohen	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07/23/2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

1. The previous rejections of claims 1-6 under 35 U.S.C. 103(a) are withdrawn do to cancellation of claims 1-6 and newly added claims 7-14. The grounds of rejection are maintained.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 7-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okuda et al. (EP 0 974 391) in view of Takashi et al. (JP 05-309329).

With respect to claims 7-14, Okuda disclose a method of mechanically mixing and dispersing a high viscosity paste material and a low-pressure gas [0026] to produce an expandable material. Wherein, method of mechanically mixing comprises supplying the low-pressure gas into a cylinder during and/or after a suction stroke of a piston pump which is reciprocated in the cylinder to carry out suction stroke and discharge stroke[0051]-[0053], then supplying the high viscosity paste material into the cylinder by batch process [0054]-[0055], carrying out the discharge stroke using the piston pump [0057], and discharging the low-pressure gas and the high viscosity paste material to a pipe in the discharge stroke [0057]-[0058].

The mechanical foaming apparatus specifically comprises, a piston pump including a piston and a cylinder [0014], in which the piston is adapted to reciprocally move within the cylinder to effect suction stroke and discharge stroke [0014]; a gas supplying device for supplying a low-pressure gas into the cylinder under a predetermined pressure [0014], [0036]-[0037]; a high viscosity material supplying device for supplying a high viscosity material into the cylinder under a predetermined pressure [0014]; a control device for controlling the gas supply [0015], high viscosity material supply, and the piston pump. The mechanical foaming apparatus further comprises a discharge device for discharging and expanding the expandable material into the pipe by connecting the pipe of the expandable material [0022], [0058]-[0060].

Okuda disclose the foaming apparatus and method of using to mix a high viscosity paste material and a low-pressure gas in order to produce an expandable material however; Okuda is silent about the type of high-viscosity material used.

Takashi disclose a sealing material with high viscous properties of a specific value to achieve excellent watertight sealing effects as well as rust prevention [0015]. Takashi disclose the sealing material having a viscosity of 40 to 1000 poises, 50 to 150 poises, 10 to 30 poises and 4 to 10 poises of viscosity at a shearing speed at 20° C of 4.3 sec^{-1} , 62 sec^{-1} , 860 sec^{-1} and 104 sec^{-1} , respectively (Abstract). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the material of Takashi in the invention of Okuda because Okuda discloses using a high viscosity material and Takashi discloses a high viscosity material. Furthermore both describe expandable materials.

Takashi discloses the sealing material comprising a series of curable materials, such as plasticizers, resins, etc. [0005]-[0009]. It would have been obvious to one of ordinary skill in the art to cure these curable materials, especially where one is trying to achieve watertightness, airtightness and rust prevention [0015] as discussed by Takashi.

4. Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over as applied to the combined teachings of Okuda et al. (EP 0 974 391) and Takashi et al. (JP 05-309329) as applied to claims 1-3,5,6 as discussed in paragraph 3 above, and in further view of Cobbs, Jr. et al (US 4,778,631)

With respect to claims 15-16, the combined teachings of Okuda and Takashi disclose a method of mechanically mixing and dispersing a high viscosity paste material and a low-pressure gas to produce an expandable material, or foam, as discussed in paragraph 3 above. However Okuda and Takashi do explicitly disclose the high viscosity paste material being a moisture-curable type, a thermosetting type, a hot-melt type, a sol-gel type, a vulcanization-crosslinking type, or a photo/radiation-curable type, comprising silicones, polyurethanes, epoxies, synthetic rubbers, polyolefins, polyesters, acrylic resins, poly (vinyl chlorides), thermoplastics, and thermoplastic elastomers.

Cobbs found that the adhesive strength bond of a hot-melt adhesive could be significantly improved and in most cases, if it were applied as a foam. Cobbs disclose a foamed material having viscosities above 1,000,000 centipoises that is adapted for an adhesive, a sealant, a coating material, a gasketing material, and a foamed molded

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material (Col 4; lines 58-68, Col 5; lines 11-28). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the expanding adhesive, or foam, taught by the combined teachings of Okuda and Takashi to the applications disclosed by Cobbs because it would have higher bonding strength than most hot-melt adhesives.

Furthermore Cobbs disclose the high viscosity material being the hot melt type or vulcanization type, or heat curing type; comprising of thermoplastic materials such as polystyrenes, or polyesters, ethyl acrylate, an acrylic resin, synthetic rubbers, polyethylene, a thermoplastic elastomer, polypropylene, a polyolefin, epoxies, chlorinated polyether, and other thermoplastics (Col 6; lines 7-65). Cobbs also disclose all of the above compositions being characterized by their thermoplastic nature which after being cured are substantially infusible and insoluble. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the thermoplastic materials disclosed by Cobbs in the high viscosity paste material taught by Okuda and Takashi in order to produce a strong adhesive.

Response to Arguments

5. Applicant's arguments filed 07/23/2008 have been fully considered but they are not persuasive.

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6. Applicant's principal arguments are that no prima facie case of obviousness is taught or suggested by the combined references of Okuda, Takashi and Cobbs and the apparatus described by Cobbs comprises a gear pump and not a piston pump.

Okuda teaches mechanically mixing a high viscosity material with a low pressure gas, using a piston pump, discharged to produce a foamed material. Takashi discloses a high viscosity material discharged to provide sealant properties and Cobbs further discloses a high viscosity material discharged to produce a foamed material. It would have been obvious to use any of the high viscosity materials disclosed in the pump of Okuda because Okuda discloses using a high viscosity material and introducing gas to produce a foamed material for filling voids or sealing. Note: Simple substitution of one known, equivalent element for another such as the high viscosity material of Takashi for that of Okuda, or similarly, the pump of Okuda for the pump of Cobbs, to obtain predictable results is considered obvious to one of ordinary skill in the art. See MPEP 2141.

In reference to applicant's argument regarding the apparatus described by Cobbs, Cobbs is not relied on for the type of pump taught. The piston pump and method of using taught by Okuda are the same as that taught by claims 7-16 as discussed above. The subject matter of Cobbs describes a high viscosity material mixed with a gas to produce a foamed material such as the material discussed in claims 15-16.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jodi Cohen whose telephone number is 571-270-3966. The examiner can normally be reached on Monday-Friday 7:00am-5:00pm Eastern.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jodi F. Cohen/
Examiner, Art Unit 1791
/ Carlos Lopez/
Primary Examiner, Art Unit 1791